Drought Status for August 2006

National Weather Service, Albuquerque, NM

Discussion: A good portion of New Mexico has seen the short-term drought diminish since the onset of the wet period that began around June 26 while portions of the east and south have seen little change or even an increase in short-term drought conditions.

July was especially wet in the Rio Grande Valley, and heavy rainfall continued into August. If the trend continues throughout the entire month of August, average precipitation in the Central Valleys (Climate Division 5) may place 2006 high on the ranks of wet summers. Flash flooding has been more extensive than usual this summer, with the Rio Grande Valley hit especially hard. July precipitation for the state averaged 139 percent of normal, but ranged from as low as 22 percent near Clovis to a whopping 361 percent at Socorro.

Some specific locations that measured over 250 percent of normal precipitation in July include: Socorro with 361 percent, Maxwell 331 percent, Bosque del Apache 330 percent, Taos 305 percent, Tucumcari Airport 284 percent, Farmington Airport 283 percent, Chaco Canyon 279 percent, Rienhardt Ranch 277 percent, El Morro 267 percent, and Albuquerque Airport 263 percent.

The Albuquerque Metropolitan area has been the focus for a number of "big rainfall event" days. Table 1 shows the June 26 through August 13 rainfall at some spots in Albuquerque.

Location	Total Rainfall June 26-August 13 2006	Normal	Percent of Normal
Albuquerque Sunport	6.13 inches	2.17 inches	282
Albuquerque South Valley	6.47 inches	2.19 inches	295
Corrales	8.47 inches	2.32 inches	365
Albuquerque Foothills	11.19 inches	3.40 inches	329
Albuquerque Petr. Park*	6.25 inches	2.58 inches	242
Rio Rancho**	7.30 inches	2.67 inches	273

Table 1

* Albuquerque Petroglyph Park precipitation is a combination of rain gage measurement and radar estimates. ** Rio Rancho total is an estimate for the city from radar composites.

Meanwhile, rainfall has been spotty in portions of eastern and southeast New Mexico. Some locations have measured below normal precipitation for the same time period, and short-term drought conditions have not eased in those areas. Locations measuring less than 50 percent of normal July precipitation included: Clovis 13N with 22 percent, House 29 percent, Carlsbad 29 percent, Ragland 36 percent, Portales 42 percent, and Conchas Dam 44 percent.

Table 2 (below) shows how the rainfall since late June has changed percentages of normal precipitation over the time period that began November 1, 2005. The first columns show the percentages of normal for the period November 2005 through May 2006. The columns to the right show the percentages of normal for the period November 2005 through August 9, 2006. These values are preliminary, based on a composite of rain gages and radar precipitation estimates. Changes in percentages are quite dramatic at a number of locations.

Some of the locations that increased approximate 9 month percentages of normal by five times or greater included: Albuquerque from 12 to 106 percent of normal, Augustine (19 to 122 percent), Bernardo (6 to 77 percent), Bosque del Apache (9 to 87 percent), Carrizozo (16 to 86 percent), Gran Quivira (7 to 65 percent), Jemez Springs (14 to 70 percent), Silver City (13 to 80 percent), Socorro (7 to 112 percent), and Truth or Consequences (8 to 72 percent).

Changes were generally smallest in the far northwest as well as the extreme east and southeast. Lowest percentages of normal for the period November 1, 2005 through August 9, 2006 were at Artesia (51 percent) and Roswell (54 percent).

Table 3 shows the percentages of normal precipitation over (approximately) the past 60 months. The recent wet period hasn't changed these percentages very much. Greatest changes included: Albuquerque (from 94 to 103 percent), Carrizozo (87 to 96 percent), Gran Quivira (93 to 101 percent), and Lordsburg (92 to 100 percent). Substantial long-term precipitation deficits still exist in some areas. Locations with the lowest percentages of normal over the past 5 years include: Truth or Consequences (65 percent of normal), Jemez Springs (71 percent), Zuni (73 percent), Santa Fe (77 percent), and Grants (78 percent). These 5-year percentages are in the lowest 10 percent of historic values.

Water-year precipitation for New Mexico (October 1, 2005 through July 30, 2006) averaged 73 percent of normal, up from 55 percent at the end of June. The range was from 58 percent of normal in climate division 3 (Northeast Plains) to 99 percent of normal in climate division 5 (Central Valleys). Water-year precipitation in the Central Valley jumped from 58 to percent of normal to 99 percent of normal in the 31-day period from June 30 till July 31. Through the end of July, calendar year precipitation averaged 80 percent of normal for the state, up from 55 percent at the end of June. Calendar-year precipitation ranged from 63 percent of normal in climate division 3 (Northeast Plains) to 116 percent of normal in climate division 5 (Central Valleys).

Location	Nov 05-May 2006 Precip.	Normal	%Norm.	Nov 2005-Aug 9 2006 Precip.	Normal	%Norm.
Abbott	2.01	4.57	44%	7.92	9.94	80%
Albuquerque	0.41	3.40	12%	6.08	5.72	106%
Amistad	2.11	5.77	37%	6.95	10.84	64%
Animas	0.41	3.60	11%	5.90	6.73	88%
Artestia	0.88	3.96	22%	3.81	7.44	51%
Augustine	0.60	3.15	19%	7.94	6.52	122%
Aztec Ruins	2.57	5.12	50%	4.36	6.83	64%
Bell Ranch	1.67	4.98	34%	7.01	10.13	69%
Bernardo	0.15	2.49	6%	3.62	4.70	77%
Bloomfield	1.93	4.15	47%	4.37	5.90	74%
Bosque del Apache	0.23	2.68	9%	4.36	5.01	87%
Capitan	1.49	5.32	28%	10.93	10.57	103%
Carlsbad	1.71	4.01	43%	4.78	7.74	62%
Carrizozo	0.71	4.47	16%	7.12	8.29	86%
Chama	5.06	11.33	45%	11.38	15.23	75%
Cimarron	1.68	6.06	28%	7.30	11.20	65%
Clayton	2.10	5.86	36%	10.23	10.89	94%
Cloudcroft	4.09	8.77	47%	19.40	16.97	114%
Corona	0.82	5.83	14%	7.94	11.81	67%
Clovis	2.51	5.80	43%	7.15	11.83	60%
Deming	0.63	2.95	21%	5.05	5.73	88%
El Rito	2.10	5.23	40%	7.18	8.23	87%
Farmington	1.98	4.36	45%	4.85	5.80	84%
Fence Lake	3.00	6.13	49%	7.81	9.51	82%
Fort Sumner	0.90	4.92	18%	5.85	9.35	63%
Gallup	1.77	5.46	32%	6.22	7.97	78%
Gascon	3.12	9.65	32%	14.80	16.86	88%
Gila Hot Springs	1.32	6.17	21%	7.25	10.35	70%
Gran Quivira	0.37	5.17	7%	6.28	9.68	65%
Grants	1.13	3.73	30%	5.45	6.54	83%
Jemez Springs	1.02	7.04	14%	8.14	11.64	70%
Johnson Ranch	1.17	4.60	25%	6.76	7.41	91%
Las Cruces	0.58	2.81	21%	3.59	5.46	66%
Las Vegas	2.35	5.62	42%	9.52	11.88	80%
Lordsburg	1.18	4.12	29%	7.89	6.82	116%
Los Alamos	1.61	6.64	24%	9.50	12.16	78%
Luna	2.72	5.80	47%	10.01	10.10	99%
Moriarty	0.85	3.90	22%	8.06	7.81	103%
Navajo Dam	3.30	7.45	44%	6.66	9.67	69%
Portales	2.43	5.46	45%	8.40	11.21	75%
Quemado	1.16	3.72	31%	6.62	6.86	96%
Ramon	1.17	4.19	28%	5.20	8.30	63%
Raton	2.42	6.70	36%	9.14	12.47	73%
Red River	8.23	9.84	84%	15.20	15.01	101%
Reserve	2.31	6.36	36%	10.10	9.96	101%
Roswell	0.94	4.33	22%	4.48	8.33	54%
Ruidoso	2.35	7.64	31%	12.85	14.60	88%
Santa Fe	1.20	5.53	22%	7.36	9.34	79%
Santa Rosa	1.46	4.82	30%	7.08	9.37	76%
Silver City	0.82	6.10	13%	8.11	10.19	80%
Socorro	0.23	3.34	7%	6.57	5.87	112%
Star Lake	1.22	3.44	35%	5.76	5.82	99%
Taos	1.41	5.50	26%	8.63	8.48	102%
Tatum	2.34	5.13	46%	6.77	10.22	66%
Truth or Consq	0.31	3.86	8%	5.26	7.29	72%
Tucumcari	2.13	5.89	36%	7.96	11.12	72%
Tularosa	0.56	3.44	16%	3.66	6.16	59%
Zuni	1.78	5.24	34%	5.58	8.12	69%

Table 2

Location	Jun 2001-May 2006 Precipitation	Normal	%Normal	Aug 2001-Aug9 2006 Precip.	Normal	%Normal
Abbott	70.29	74.60	94%	68.08	72.38	94%
Albuquerque	41.06	43.45	94%	43.51	42.41	103%
Amistad	78.23	77.05	102%	76.71	75.19	102%
Animas	44.57	54.60	82%	44.12	52.97	83%
Artestia	57.58	58.90	98%	58.68	57.64	102%
Augustine	56.83	56.05	101%	56.07	54.25	103%
Aztec Ruins	45.02	49.50	91%	43.99	48.63	90%
Bell Ranch	72.74	73.90	98%	71.15	72.13	99%
Bernardo	36.67	41.20	89%	36.49	40.01	91%
Bloomfield	37.92	43.55	87%	38.61	42.63	91%
Bosque del Apache	42.43	43.40	98%	42.64	42.24	101%
Capitan	68.85	80.70	85%	71.98	78.61	92%
Carlsbad	57.06	62.30	92%	57.97	61.01	95%
Carrizozo	55.60	63.60	87%	59.49	61.92	96%
Chama	94.74	105.00	90%	95.45	103.06	93%
Cimarron	75.50	80.85	93%	75.37	78.82	96%
Clayton	74.33	77.50	96%	78.01	75.82	103%
Cloudcroft	124.70	124.80	100%	128.07	121.36	106%
Corona	84.34	89.45	94%	84.89	87.36	97%
Clovis	88.45	89.40	99%	87.40	87.29	100%
Deming	38.33	46.00	83%	38.92	44.69	87%
El Rito	56.81	61.10	93%	57.42	59.57	96%
Farmington	36.75	43.35	85%	37.76	42.53	89%
Fence Lake	64.11	71.25	90%	63.53	69.52	91%
Fort Sumner	67.77	72.30	94%	69.11	70.45	98%
Gallup	47.57	57.95	82%	47.82	56.60	84%
Gascon	113.08	119.25	95%	113.90	116.04	98%
Gila Hot Springs	64.91	81.70	79%	64.38	79.48	81%
Gran Quivira	70.76	75.80	93%	74.47	73.52	101%
Grants	40.34	53.00	76%	40.13	51.53	78%
Jemez Springs	58.16	86.45	67%	59.75	84.31	71%
Johnson Ranch	49.42	56.65	87%	51.74	55.10	94%
Las Cruces	41.39	46.70	89%	41.58	45.12	92%
Las Vegas	76.49	95.20	80%	76.53	92.17	83%
Lordsburg	47.49	51.90	92%	50.65	50.52	100%
Los Alamos	70.88	91.65	77%	72.31	89.11	81%
Luna	70.60	79.10	89%	69.43	76.91	90%
Moriarty	53.79	62.70	86%	56.79	60.85	93%
Navajo Dam	54.51	67.05	81%	54.82	65.81	83%
Portales	75.01	83.70	90%	77.06	81.70	94%
Quemado	51.44	54.25	95%	53.08	52.58	101%
Ramon	54.83	64.20	85%	54.55	62.67	87%
Raton	80.49	88.30	91%	80.74	85.87	94%
Red River	106.22	102.65	103%	105.68	100.46	105%
Reserve	64.92	78.85	82%	67.37	76.83	88%
Roswell	52.37	64.65	81%	54.26	63.21	86%
Ruidoso	91.65	109.25	84%	94.04	106.28	88%
Santa Fe	50.83	68.50	74%	51.80	66.99	77%
Santa Rosa	70.19	70.85	99%	70.89	68.96	103%
Silver City	65.34	79.60	82%	64.10	77.41	83%
Socorro	43.07	48.00	90%	44.78	46.81	96%

Star Lake	43.98	46.35	95%	45.01	45.02	100%
Taos	53.35	60.75	88%	56.44	59.43	95%
Tatum	79.88	79.70	100%	80.88	77.95	104%
Truth or Consq	36.27	60.40	60%	38.18	58.86	65%
Tucumcari	83.42	79.75	105%	83.99	77.83	108%
Tularosa	47.01	49.05	96%	47.69	47.84	100%
Zuni	44.84	61.00	74%	43.16	59.42	73%

Table 3

One way to assess short and long-term drought is to look at the precipitation percentiles. In general, percentiles provide a good measure of how rare conditions are. Percentiles greater than 50 indicate the area has been wetter than average. Drought is associated with the lower percentiles. Percentiles less than the 11th are usually associated with "Emergency" designations in New Mexico. Percentiles from 11th to 20th are consistent with drought "warning" designations. The 21st to 30th percentiles are associated with drought "alerts," and the 31st to 40th percentiles are consistent with "heads up" advisories.

Figures 1 and 2 depict these precipitation percentiles for the worst short-term (approximately 9 months) and long-term (approximately 60 months) conditions in New Mexico. Figure 3 is a 50:50 blend of the other two figures.

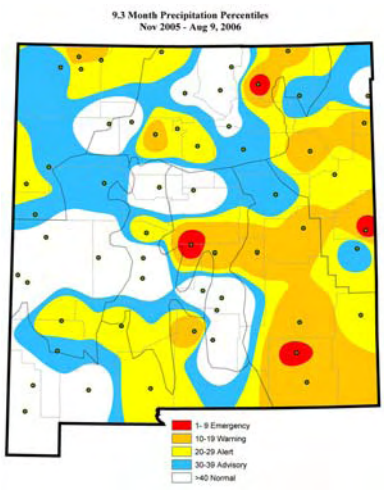

Fig 1

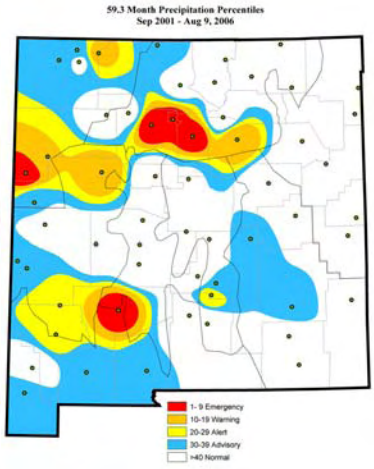

Fig 2

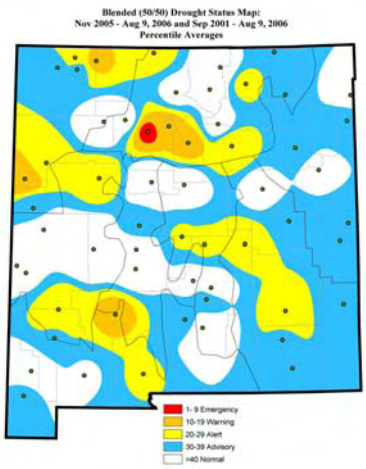

Fig 3

While emergency (red) short-term drought covered nearly the entire state in June, the recent rainfall has improved short-term conditions over much of the state. By August 9, only a few spots of red are apparent (fig 1). Worst short-term conditions are now over the eastern counties, especially the southeast. Meanwhile, (fig 2), worst long-term drought conditions remain established over the northern mountains, the Arizona border region west of Gallup, and over a small portion of southern New Mexico along the Rio Grande.

Figures 4 and 5 show the short and long-term conditions for the June assessment (before the rainy period began) and the August assessment. The differences are quite dramatic, especially for short-term conditions. There has been one change in the color scheme. Normal conditions were shown in dark blue in the June assessment. Normal conditions are now shown as white.

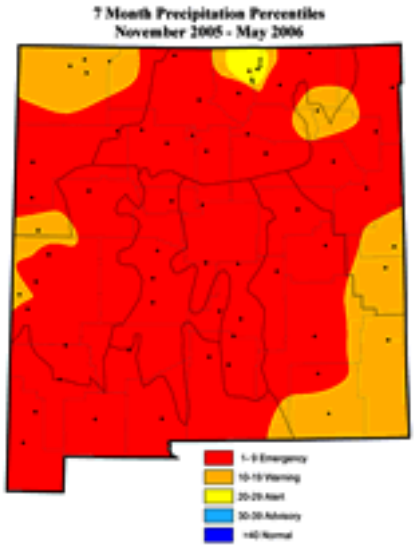

Fig 4a

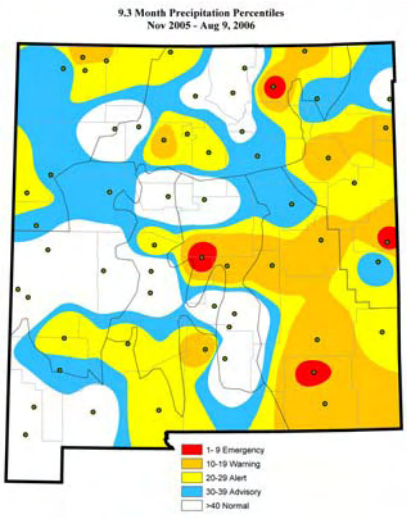

Fig 4b

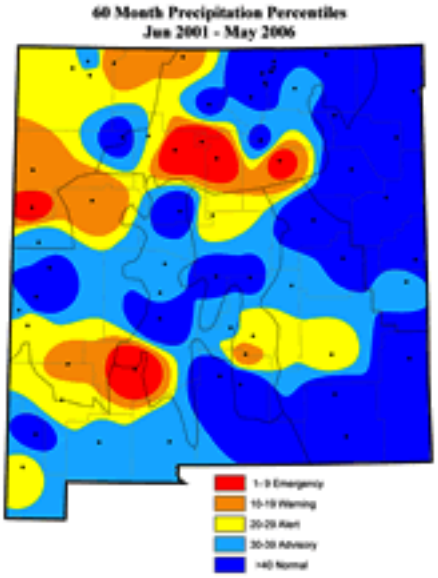

Fig 5a

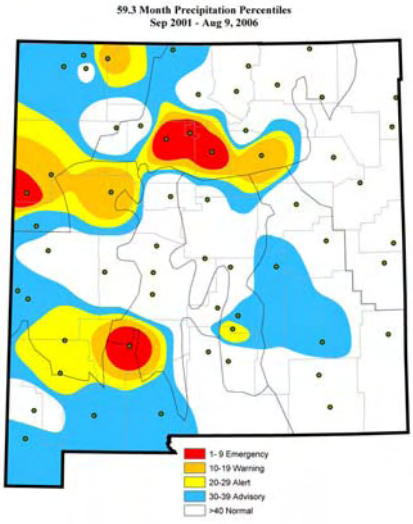

Fig 5b

According to the National Climatic Data Center (NCDC), July was 18th warmest of the past 112 years in New Mexico. The 12 month period (August 2005 through July 2006) was the 3rd warmest such period since 1895. These relatively-warm conditions over the previous 12 months have exacerbated drought conditions through increased evaporation and stress on vegetation. Figures 4 and 5 show the National Climatic Data Center (NCDC) rankings by state for the month of July, and for the August 2005 through July 2006 period.

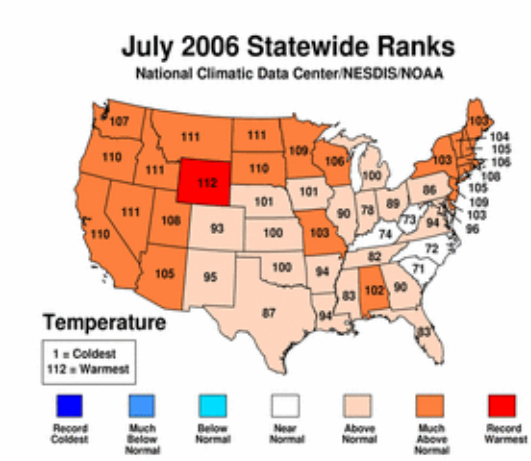

Fig 4

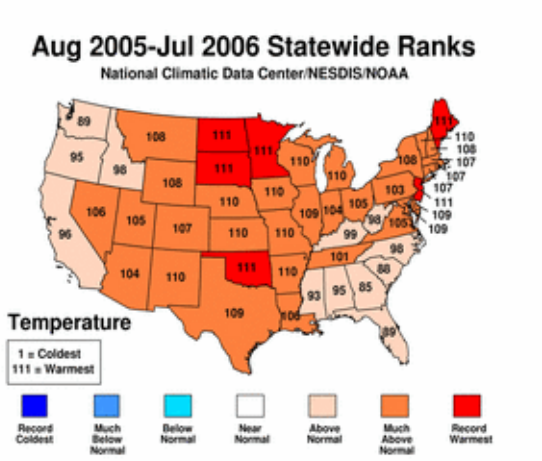

Fig 5

Rangeland/Pasture conditions: According to USDA, as of August 6, 42 percent of the range and pasture land of New Mexico was in poor to very poor condition. This shows a substantial improvement since July 9, when 70 percent of the conditions were categorized as poor or very poor. Consequently, the range and pasture conditions are now close to normal when compared to historical percentages of poor or very poor conditions. As of August 6, the USDA assessment determined soil moisture was short or very short over 46 percent of the land. This is down from 74 percent in mid-July. August soil moisture was considered to be adequate or surplus over 54 percent of the land, compared to only 26 percent a month ago. All of these data show the substantial improvement in the short-term drought situation due to the summer rainfall.

Fire Danger Impacts: Because of the summer rainfall, fire danger was low to moderate over much of New Mexico in mid-August. There were only a few spots of high fire danger over the grasslands of eastern New Mexico where rainfall hasn't been as abundant. Fire danger will likely remain low to moderate for the remainder of August, but will likely increase somewhat in September if the summer rainy season comes to an abrupt end.

Hydrologic Impacts: Summer rainfall has helped stream flow and storage, especially in the smaller systems. At the end of July, NRCS reported storage was near normal at Abiquiu (110 percent of normal), Costilla (95 percent), and Navajo (101 percent) Reservoirs in northern New Mexico. These storages have held relatively steady over the past couple of months. Heron (60 percent of normal) was unchanged from late June, while El Vado dropped from 55 to 43 percent of normal. Heavy rainfall in the Rio Grande Valley was providing some inflow to the Elephant Butte system, but the Butte was only 15 percent of normal. Storages along the Pecos were mostly well-below normal (48 percent at Santa Rosa and 49 percent at Sumner), while on the Canadian, Conchas Lake storage was only 30 percent of normal.

Stream flows have exhibited considerable variability over the past month, with rapid changes due to flash floods moving through the systems.

Long-range outlook:
Summer rainfall will continue through August, with best chances for continued above-normal rainfall over the central and western counties. The summer thunderstorm season will diminish over northern New Mexico during the first two weeks of September, and over southern New Mexico in mid to late September. It's too early to be specific with forecasts for the coming autumn and winter. There are significant relationships between the El Niño Southern Oscillation (ENSO, which includes El Niño and La Niña), and New Mexico cool-season precipitation. At this time, it appears an ENSO-neutral condition will continue for the coming months. Consequently, confidence in winter outlooks is not especially high right now. However, the good news at this time is that there are no indicators that La Niña will develop. La Niña is generally associated with below-normal cool-season precipitation in New Mexico. Consequently, the best

course of action at this time is to expect the coming winter precipitation to be significantly greater than during the winter of 2005-2006.

Table 4 shows the year to date and calendar year precipitation for a number of locations in New Mexico (through July).

Calendar Year 2006 and Water Year 2006 (Oct thru Jul) Precipitation for New Mexico

National Weather Service Albuquerque, NM

	2006 (Jan - Jul)			Water Year 2006 (Oct 05 through Jul 06)			
Location	**Obs**	**Normal**	**%Normal**	**Obs**	**Normal**	**% Normal**	**SID**
Northwest Plateau							
AZTEC RUINS N/M	3.63	5.02	72%	6.24	7.63	82%	AZT
FENCE LAKE	5.96	7.00	85%	6.87	10.25	67%	FCK
FARMINGTON AG CTR	3.96	4.23	94%	5.04	6.45	78%	FAR
GALLUP FAA APRT	4.16	5.78	72%	4.60	8.56	54%	GUP
LINDRITH 2SE	4.91	7.57	65%	7.38	10.78	68%	LDR
NAVAJO DAM	5.68	6.89	82%	9.03	10.49	86%	BLN
Northern Mountains							
ALCALDE	4.62	4.77	97%	5.60	6.87	82%	ALC
CANJILON R/S	6.60	8.27	80%	9.15	11.44	80%	CJL
CERRO	7.98	6.80	117%	10.83	9.28	117%	CRR
CHAMA	9.16	11.44	80%	12.53	16.28	77%	CHM
CIMARRON 4SW	4.34	9.50	46%	5.44	11.66	47%	CPS
GHOST RANCH	4.83	6.03	80%	6.57	8.20	80%	AIQ
JEMEZ SPRINGS	5.79	9.04	64%	6.65	12.50	53%	JEM
JOHNSON RANCH	5.28	5.55	95%	5.94	7.95	75%	CUB
LAS VEGAS FAA APRT	4.87	9.00	54%	5.69	11.32	50%	LVS
LOS ALAMOS	5.55	9.57	58%	6.74	12.81	53%	LOA
RATON FILTER PLT	7.04	10.40	68%	8.58	12.79	67%	RRT
RED RIVER	12.43	11.94	104%	16.24	15.77	103%	RED
SANTA FE 2	5.34	7.29	73%	6.97	10.03	69%	STF
WOLF CANYON	11.40	12.47	91%	13.16	17.44	75%	CUA
Northeastern Plains							
CLAYTON APRT	6.87	9.46	73%	7.44	11.42	65%	CAO
CLOVIS	6.14	9.89	62%	7.73	12.79	60%	CLV
CONCHAS DAM	5.32	7.97	67%	5.69	10.01	57%	CNC
MOSQUERO 1NE	4.45	9.43	47%	5.13	11.58	44%	MSQ
PORTALES	5.22	9.35	56%	6.61	11.89	56%	POR
TUCUMCARI 4NE	7.07	9.24	77%	7.63	11.72	65%	TUC
Southwestern Mountains							
FORT BAYARD	6.53	7.26	90%	8.64	10.35	83%	FTB
GILA HOT SPRINGS	6.29	7.20	87%	8.45	11.17	76%	GHS
GRANTS APRT	3.33	4.82	69%	3.92	7.18	55%	GNT
QUEMADO ESTATES	1.80	4.19	43%	2.93	6.84	43%	QME
RESERVE R/S	8.80	6.90	128%	9.86	11.02	89%	RES
Central Valley							
ABQ WSFO APRT	5.00	4.44	113%	6.13	6.27	98%	ABQ
BOSQUE DEL APACHE	4.15	3.71	112%	5.65	5.61	101%	SAA
LOS LUNAS 3SSW	3.75	3.95	95%	4.97	6.02	83%	LLU
SOCORRO	6.31	4.47	141%	7.35	6.48	113%	SCR

Central Highlands							
CAPITAN	8.35	8.60	97%	10.48	10.83	97%	CAP
CLOUDCROFT	14.38	13.18	109%	16.58	17.43	95%	CLD
ESTANCIA 4N	6.00	6.34	95%	7.50	8.76	86%	EST
MOUNTAINAIR R/S	6.42	7.30	88%	7.77	10.05	77%	MTN
RUIDOSO 2NNE	11.09	11.12	100%	14.25	15.14	94%	RUP
Southeastern Plains							
ARTESIA 6S	3.71	6.08	61%	4.54	8.18	56%	ART
CARLSBAD	4.74	6.30	75%	5.77	8.65	67%	CWP
FORT SUMNER	5.16	7.53	69%	6.00	10.08	60%	FSM
ROSWELL CLIMAT	4.13	6.74	61%	5.42	9.03	60%	ROW
SANTA ROSA	4.10	7.63	54%	4.62	9.91	47%	SNR
TATUM	6.62	8.59	77%	8.24	11.13	74%	TAT
Southern Desert							
ANIMAS	4.62	4.69	99%	6.55	7.15	92%	ANM
DEMING	3.08	4.14	74%	4.17	6.06	69%	DEM
FAYWOOD	4.03	5.08	79%	5.48	7.83	70%	FAY
STATE U LAS CRUCES	2.09	3.71	56%	3.66	5.80	63%	STC
TRUTH OR CONSEQ	3.98	4.77	83%	5.30	8.09	66%	TRC
TULAROSA	3.17	4.61	69%	4.40	6.68	66%	TLR

	2006 (Jan - Jul)	**Water Year 2006 (Oct 05 through Jul 06)**
Climate Division	**% Nrml**	**% Nrml**
Northwest Plateau	78%	72%
Northern Mountains	78%	73%
Northeastern Plains	63%	58%
Southwestern Mountains	88%	73%
Central Valley	116%	99%
Central Highlands	99%	91%
Southeastern Plains	66%	61%
Southern Desert	78%	71%
All Divisions	80%	73%

Table 4